SIEMENS

ARCADIS Avantic

SP

Installation and Startup

System

Retrofitting the Remote Control Unit

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Print No.: SPR2-330.814.03.02.02
Replaces: SPR2-330.814.03.01.02

English
Doc. Gen. Date: 06.07

Document revision level

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Safety Instructions

General safety information

⚠WARNING

Danger of injuries, death or material damage.

Non-compliance can lead to death, injury or material damage.

Please note:

- ➪ **The product-specific safety notes in these instructions,**
- ➪ **The general safety information in TD00-000.860.01... and**
- ➪ **The safety information in accordance with ARTD Part 2.**

General electrical safety information

⚠WARNING

Electrical safety!

Non-compliance can lead to severe injury or even death, as well as material damage.

- ➪ **Parts under electrical voltage are accessible when the covers are open. To avoid danger, disconnect the system from the power supply before opening the covers. Disconnect the power plug.**
- ➪ **If an uninterruptible power supply (UPS) is installed in the system, the voltage output of the UPS must also be deenergized or the voltage output plug must be disconnected.**
- ➪ **If work steps must be performed using electrical power, the general safety information according to TD00-000.860.01 must be observed.**

Mechanical safety information

⚠CAUTION

Risk of burns from hot parts or components!

Failure to observe may result in minor to more severe burns, especially on the hands.

- ➪ **Once the cover panels are opened, parts and components (e.g. power components, cooling fin, electromagnetic brakes) that can exceed 50 degrees Celsius during operation are accessible. To avoid burns, switch the system off before touching parts or components and allow at least 5 minutes for it to cool down.**

⚠CAUTION

Risk of injury from mechanical parts!

Failure to observe may result in minor to more severe injury, especially to the hands.

- **Once the cover panels are opened, parts such as flat plugs, threaded bolts, cut-off cable ties and component edges are exposed. If you are not careful, these can cause crushing, scrapes and cuts to the skin, particularly to the hands.**
- **Perform the required work with special care and attention to detail.**
- **If necessary, wear work gloves.**

Radiation safety information

⚠WARNING

X-ray radiation!

Non-compliance can lead to illness, irreversible damage to body cells and the genotype, severe injury and even death.

During work on the system in which radiation must be released, the radiation protection directives and the rules for radiation protection according to ARTD-002.731.02.. must be complied with.

Please note:

- **Use available radiation protection devices.**
- **Wear radiation protection clothing (lead apron).**
- **Stay as far away as possible from the radiation source.**
- **Release radiation only if necessary.**
- **Set the radiation activity as low as possible. (low kV and mA values, short radiation time)**
- **Release radiation for as short a time as possible.**
- **Checks requiring the release of radiation are identified by the radiation warning symbol shown on the left.**

Information on the protective conductor resistance test

Observe the instructions in the "Safety Rules for Installation and Repair" (ARTD-002.731.17 ...).

The protective conductor resistance must be measured after every intervention in the system.

However, documentation of the measured values is required only during periodic safety checks.

If parts/components that can significantly influence the protective conductor resistance (e.g., replacement of the power cable, replacement of the power-up module, replacement of multi-pole connection cables which also create the protective conductor connection between system parts (e.g., monitor cable or C-arm cable)) are replaced or if protective conductor connections have been repaired, the protective conductor resistance must be measured. The values must be documented and evaluated in the protective conductor resistance protocol.

NOTE

For evaluation purposes, the first measured value and the values documented during maintenance or safety checks must be compared to the measured values. A sudden or unexpected increase in the measured values may indicate a defect in the protective conductor connections - even if the limit value of 0.2 ohms is not exceeded. (Protective conductor or contacts).

The measurement must be performed according to DIN VDE 0751, Part 1 (see ARTD Part 2). The protective conductor resistance for all touchable conductive parts must be measured during the normal operating state of the system.

Make sure that control cables or data cables between the components of the system are not mistaken for protective conductor connections.

During the measurement, the power cable and additional connection cables which also create the protective conductor connection between system parts (e.g. monitor cable between the basic unit and monitor trolley) must be moved section by section to detect cable breaks.

The protective conductor resistance must not exceed 0.2 Ohms.

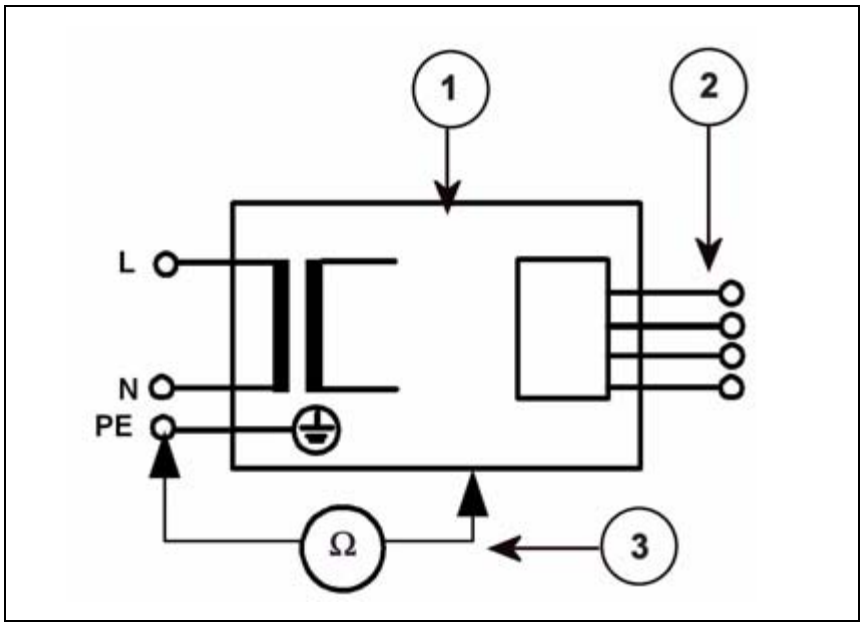

Fig. 1: Measuring circuit for measuring the protective conductor resistance for units that are disconnected from power, in compliance with DIN VDE 0751-1/2001-10, Fig. C2.

Pos. 1 = System

Pos. 2 = Application part type B (if available)

Pos. 3 = Measurement setup (integrated into measuring device)

Validity of this Document

This document applies for retrofitting a Remote User Interface (RUI) on the ARCADIS Avantic System starting with serial number 31091.

Tools and auxiliary equipment required

Standard tool kit (see Service Tool Catalogue)

Protective conductor test unit, e.g. Bender UNIMET 1100, Mat. No. 051 38 727

ISK set of wrenches (metric)

Spanner wrench (metric) 24mm

Required material

ARCADIS Avantic from serial number 31091 to 31209

Remote control unit English text, Mat. No. 100 47 649

or

Remote control unit Icon, Mat. No. 100 47 667

RUI (Remote User Interface) adapter kit, Mat. No. 102 52 061

EMC Kit RUI (Remote User Interface), Mat. No. 102 52 062

ARCADIS Avantic starting with serial number 31210

Remote control unit English text, Mat. No. 100 47 649

or

Remote control unit Icon, Mat. No. 100 47 667

RUI (Remote User Interface) adapter kit, Mat. No. 102 52 061

Directional instructions in this document

Directional instructions in this document refer to the instructions in the following figure of ARCADIS Avantic.

Fig. 2: Directional instructions in this document

Delivery volume

RUI Adapter Kit

Fig. 3: RUI Adapter Kit

The delivery volume for the RUI adapter kit includes:

- Circuit board D32 Interface, Mat. No. 10096538
- RUI cable set
  - D32.X1 - X30 cable (round ODU connector)
  - D32.X2 - D30.X12 cable
  - D32.X4 - D1.X3 cable
  - D32.X6 - X31.1 and X31.2 cable
  - D32.X8 - X40 cable
  - Protective conductor D32.PE - D32. mounting plate
- Small parts (insulating tubes, nuts, washers, contact disks, cable ties...)

RUI mount

Fig. 4: RUI mount

- RUI mount adapter kit
- Small parts (4 Allen screws, 4 spring nuts)

Preparatory work steps

Completely shut down lifting column

- Switch on the system and wait for it to boot up.
- Move the lifting column down to its lowest position.
- Leave the system on.

Short functional test of the existing control panel

- Briefly test the functionality of the existing control panel by selecting a different mode of operation and moving the collimator positions.

Opening the rear cover panel of the basic unit

- Switch the system off and wait until it turns off automatically.
- Disconnect the power plug from the power supply.
- Unplug the X10 monitor plug from the basic unit.
- Open the rear cover panel of the basic unit and lift.
- Unscrew the protective conductor from the cover panel.
- Set the cover panel a bit off to the side from the basic unit for better access.

Installing the D32 Circuit Board

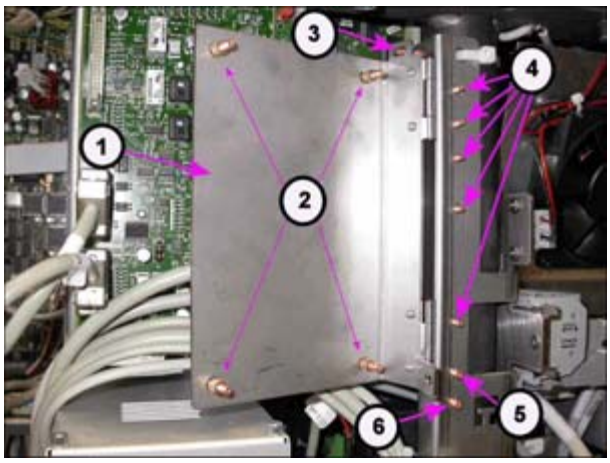

Fig. 5: D32 Fitting panel

Pos. 1 D32 fitting panel; pivotable
Pos. 2 Threaded bolts with suspended insulating sleeves
Pos. 3 Adjustment screw in normal position
Pos. 4 Threaded bolts for cable clips
Pos. 5 Adjustment screw in service position
Pos. 6 Threaded bolts for protective conductor connection

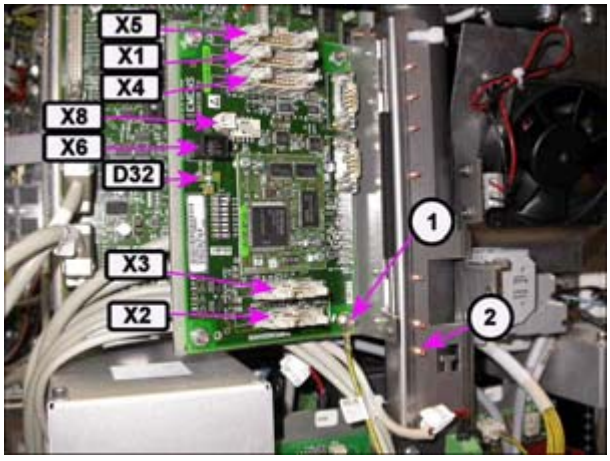

Fig. 6: D32 Connector

Pos. 1 Threaded bolts with protective conductor
Pos. 2 Threaded bolts with protective conductor

- Remove the four insulators from the accessories kit.
- Attach the insulators onto the threaded bolts of the existing fitting panel.
- Place the new D32 circuit board onto the threaded bolts.
  - ➪ Position D32: connector D32.X5 top, connector D32.X2 bottom.
- In addition to the protective conductor D32.PE - D32 included, place the fitting panel onto the right bottom threaded bolt.
- Mount the D32 circuit board onto the four threaded bolts using the washers, contact disks and screw nuts provided.

- Place the other end of the protective conductor on the contact plate next to the fitting panel of the D32 circuit board and tighten onto the bottom threaded bolts (M4 screw nut, washer, contact disk). Make sure the protective conductor has good contact.

D32 Check S1

- Check the position of the D32.S1 DIP switch.
  - ➪ Position S1.1: ON
  - ➪ Position S1.2 to S1.8: OFF
- Position of the DIP switch: See illustration

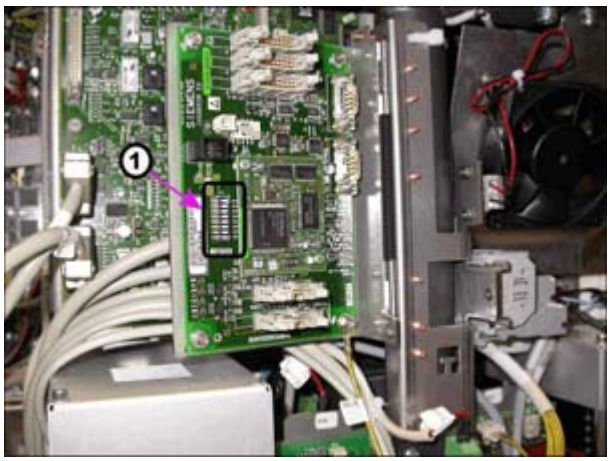

Fig. 7: D32 S1
Pos. 1 Position of D32.S1

Cabling

Changes to the existing cabling in the basic unit

Cable, connected to D1. X3

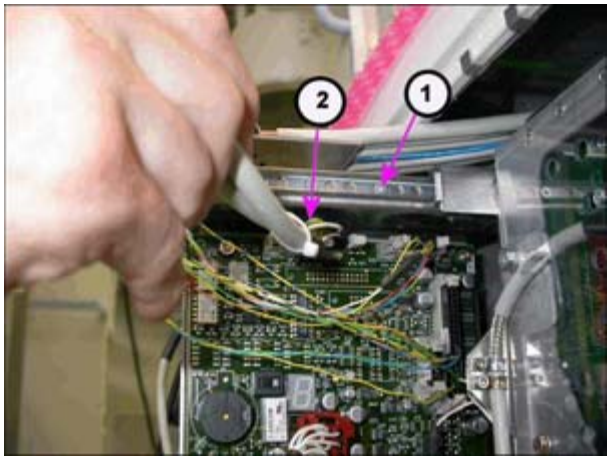

Fig. 8: D1.X3

Pos. 1 D1/D30 plug-in rack

Pos. 2 D1.X3 connector

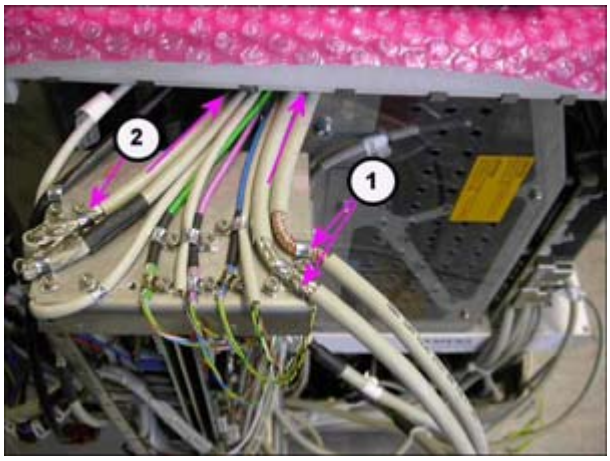

Fig. 9: Cable clips for plug-in rack

Pos. 1 D1.X3 cable clips

Pos. 2 D30.X12 cable clips

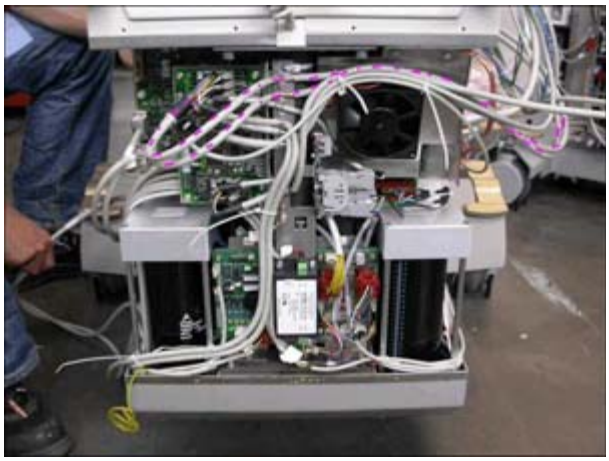

Fig. 10: D32.X5 cable

- Loosen the plug-in rack of the D1/D30 circuit board and place it horizontally into the service position (pull out).
- Loosen the X3 connector from the D1 circuit board.

NOTE	**2 cables are attached to the D1.X3 connector.**

- Loosen both cable clips for contacting the shielding of both cables on the top side of the plug-in rack.
- Remove any existing cable ties.
- Pull out the cables between the top side of the generator housing and the cover of the basic unit on the unit's right side.
- Continue to lay the cables along the existing cabling to the D32 circuit board.
- Slide the D1.X3 connector onto the D32.X5 circuit board.

NOTE	**The D1.X3 connector is labeled with D1.X3 / D32.X5**

- Attach cable shielding to the grounding bracket to the right next to the D32 circuit board using the A5 clip (thicker cables), the A4 clip (for thinner cables), a washer, and the M4 screw nut. Make sure that the shielding makes good ground contact.
- Attach the cable shielding to the grounding bracket to the right next to the D32 circuit board using the A5 clip (thicker cables), the A4 clip (for thinner cables), a washer, and the M4 screw nut. Make sure that the shielding makes good ground contact.

Cable, connected to D30. X12

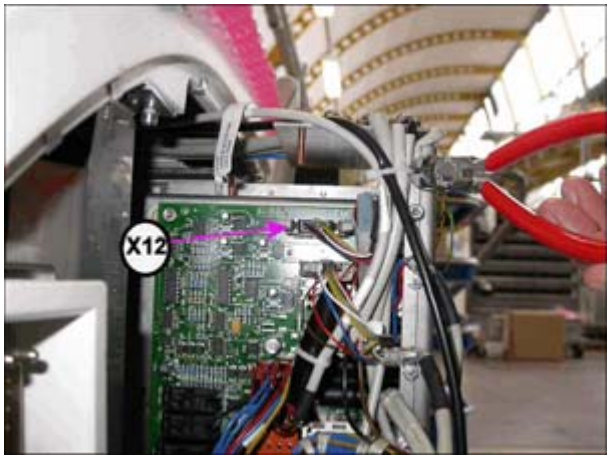

Fig. 11: D30.X12

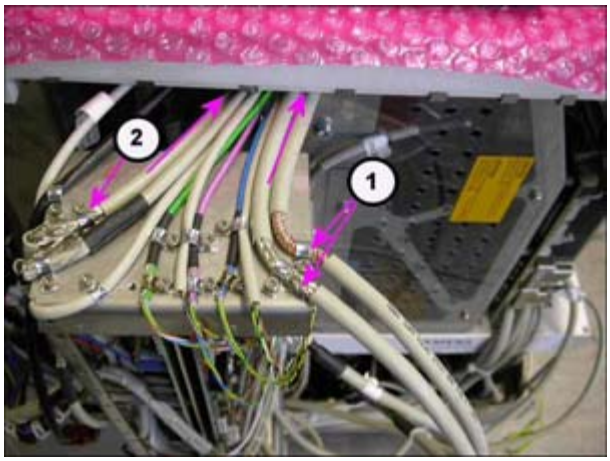

Fig. 12: Cable clips for plug-in rack

Pos. 1 D1.X3 cable clips

Pos. 2 D30.X12 cable clips

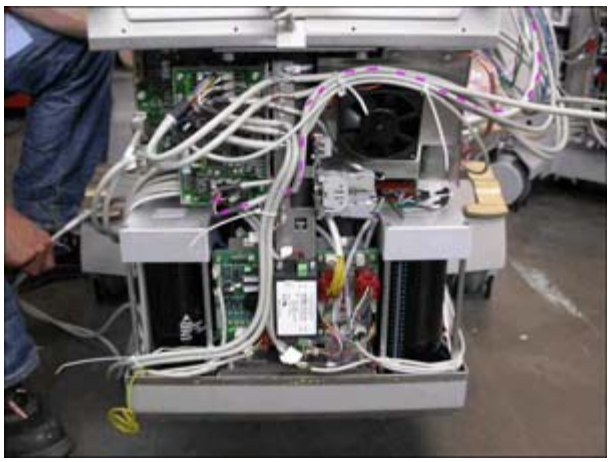

Fig. 13: D32.X3 cable

- Loosen the plug-in rack of the D1/D30 circuit board, it is already in the service position (pulled out).

- Loosen the X12 connector from the D30 circuit board.
- Loosen both cable clips for contacting the cable shielding on the top side of the plug-in rack.
- Remove any existing cable ties.
- Pull out the cables between the top side of the generator housing and the cover of the basic unit on the unit's right side.
- Continue to lay the cables along the existing cabling to the D32 circuit board.
- Insert the D30.X12 connector onto the D32.X3 circuit board.

NOTE	**Starting with serial number 31091, the D30.X12 connector is labeled as: D30.X12 / D32.X3**

- Attach the cable shielding to the grounding bracket to the right next to the D32 circuit board using the A4 cable clip, a washer and the M4 screw nut. Make sure that the shielding makes good ground contact.

Installing new cables

D32.X4 - D1.X3 cable

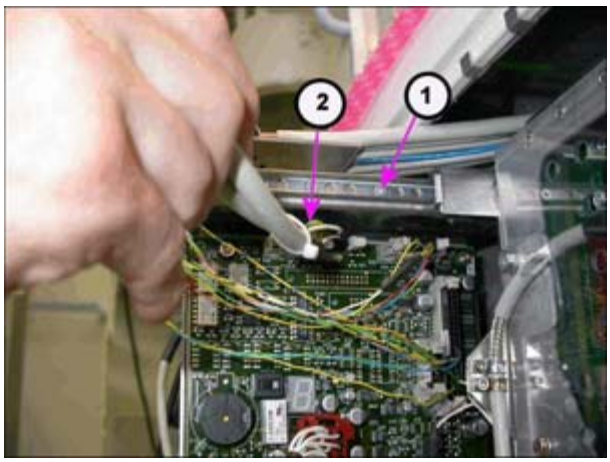

Fig. 14: D1.X3

Pos. 1 D1/D30 plug-in rack

Pos. 2 D1.X3 connector

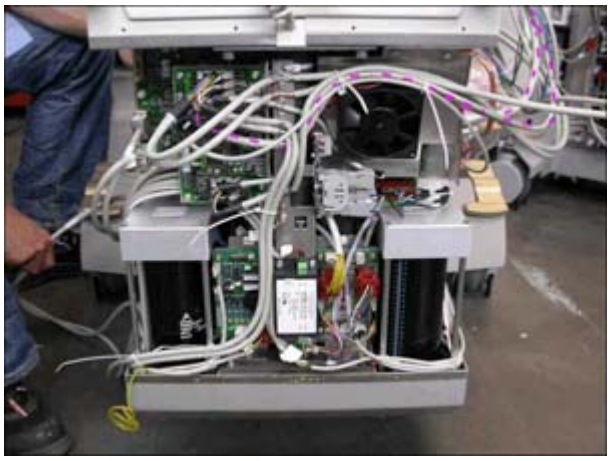

Fig. 15: D32.X4 - D1.X3 cable

- Remove the D32.X4 - D1. X3 cable from the cable set.
- Insert the D1.X3 connector into the D1.X3 circuit board and secure.

NOTE	**2 cables are attached to the D1.X3 connector.**

- Lay the cables upwards, between the generator housing and the unit cover to the right side of the basic unit.
- On the top side of the plug-in rack, secure the cable shielding using the previously loosened cable clips. Make sure that the shielding makes good ground contact.
- Continue to lay the cables along the existing cabling to the D32 circuit board.
- Insert the D32.X4 connector into the D32.X5 circuit board.
- Attach cable shielding to the grounding bracket to the right next to the D32 circuit board using the A5 clip (thicker cables), the A4 clip (for thinner cables), a washer, and the M4 screw nut. Make sure that the shielding makes good ground contact.

D32.X2 - D30.X12 cable

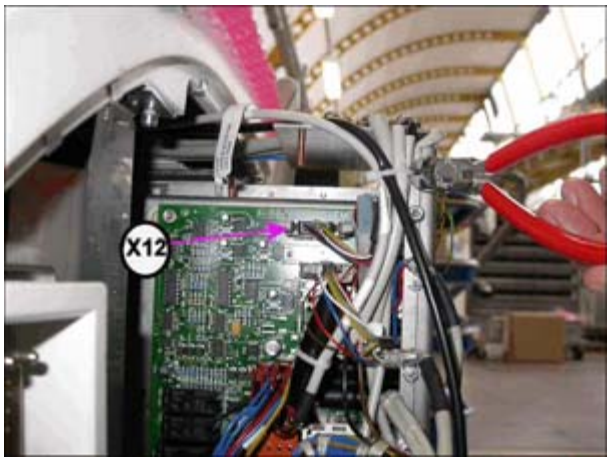

Fig. 16: D30.X12

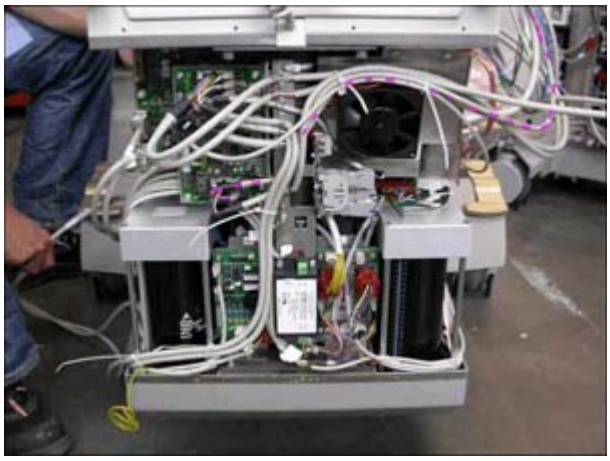

Fig. 17: D32.X2 - D30.X12 cable

- Remove the D32.X4 - D1. X3 cable from the cable set.
- Insert the D30.X12 connector into the D30.X12 circuit board and secure.
- Lay the cables upwards, between the generator housing and the unit cover to the right side of the basic unit.
- On the top side of the plug-in rack, secure the cable shielding using the previously loosened cable clips. Make sure that the shielding makes good ground contact.
- Continue to lay the cables along the existing cabling to the D32 circuit board.
- Insert the D32.X2 connector into the D32.X2 circuit board.
- Attach wire shielding to the grounding bracket to the right next to the D32 circuit board using the A5 clip (thicker wiring), the A4 clip (for thinner wires), a washer, and the M4 screw nut. Make sure that the shielding makes good ground contact.

D32.X8 - X40 cable

Fig. 18: X40 plug-in connection, right side of basic unit

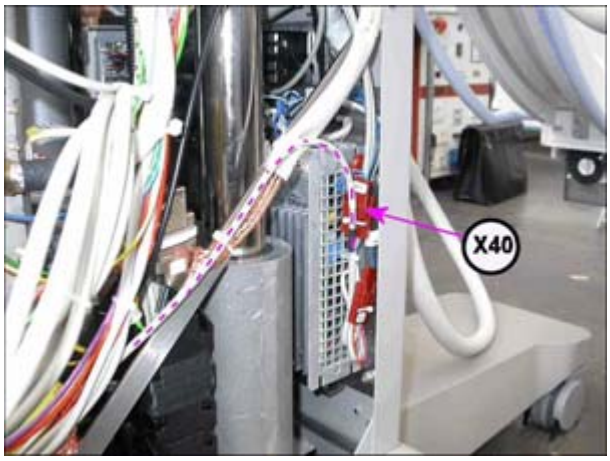

Fig. 19: D32.X8 - X40 cable, right side of basic unit

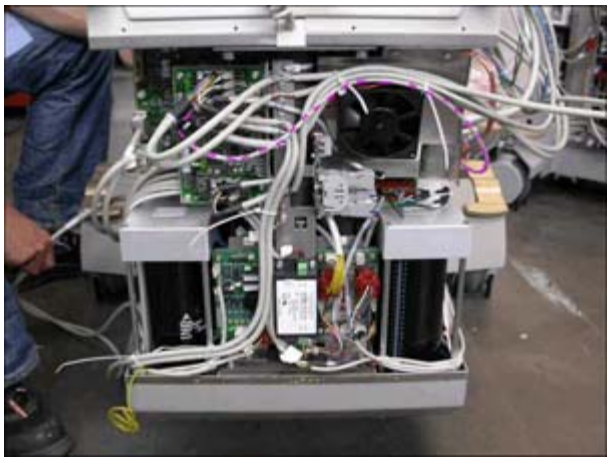

Fig. 20: D32.X8 - X40 cable

- Remove the D32.X8 - X40 cable from the cable set.
- The existing X40 connector is visible on the right front side.
- Pull out the coupling (with bridging cable) from the existing X40 connector .
  - ➪ The coupling is no longer required.
- Insert the new X40 coupling of the D32.X8 - X40 cable into the X40 connector.
- Lay the cable on the unit's right side along the existing cabling forward to the D32 circuit board and insert the D32.X8 connector into the D32.X8 circuit board.
- Attach the cable shielding to the grounding bracket to the right next to the D32 circuit board using the A4 cable clip, a washer and the M4 screw nut. Make sure that the shielding makes good ground contact.

D32.X6 - X31.1/X31.2 cable

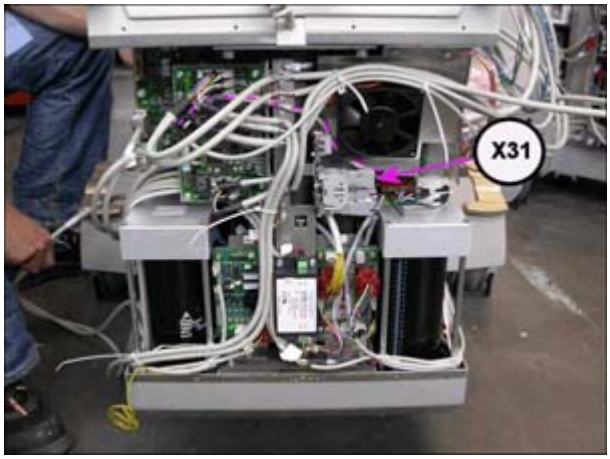

Fig. 21: D32.X6 - X31.1/X31.2 cable

- Remove the D32.X6 - X31.1 / X31.1 cable from the cable set.
- The basic unit's plug-in connection is visible in the back end of the basic unit.
- Insert the X31 connector into the X31 plug-in connection using its X31.1 and X31.2 contacts.
- Continue to lay the cabling toward the D32 circuit board and insert into the D32.X6 connector.
- Attach the cable shielding to the grounding bracket to the right next to the D32 circuit board using the A4 cable clip, a washer and the M4 screw nut. Make sure that the shielding makes good ground contact.

D32.X1 - X30 cable (round ODU connector)

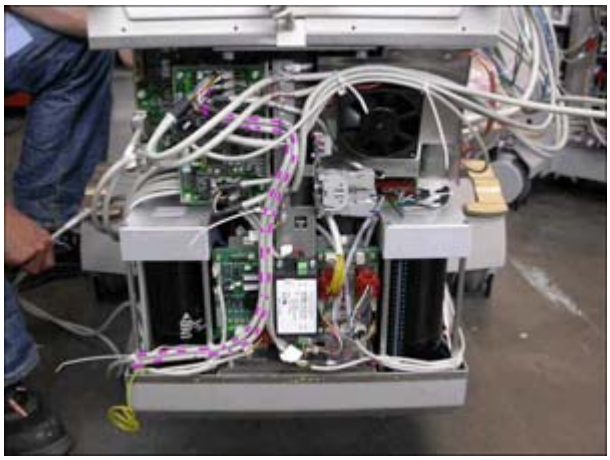

Fig. 22: D32.X1 - X30 cable

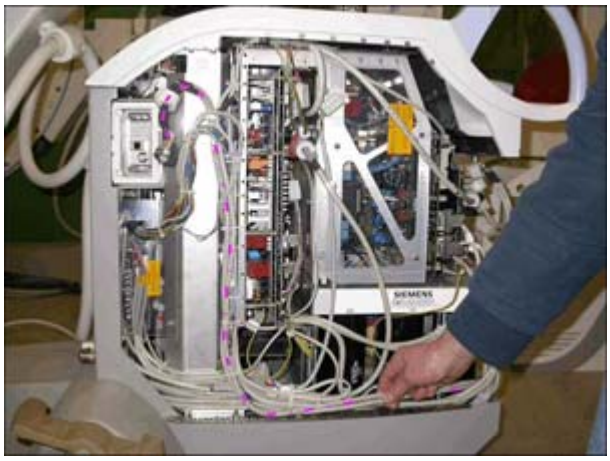

Fig. 23: D32.X4 - X30 cable

- Remove the D32.X1 - X30 cable from the cable set.
- Insert the D32.X1 connector into the D32.X1 circuit board.

NOTE	**2 cables are attached to the D32.X1 connector.**

- Attach wire shielding to the grounding bracket to the right next to the D32 circuit board using the A5 clip (thicker wiring), the A4 clip (for thinner wires), a washer, and the M4 screw nut. Make sure that the shielding makes good ground contact.
- Lay the cables on the left side of the basic unit along the existing cabling forward to the D1/D30 plug-in rack.
- Lay the cables to the left next to the D1/D30 plug-in rack.
  - ➪ The ODU X30 jack should be mounted as shown in the illustration.
  - ➪ In doing so, make sure that no individual cables behind the cladding panel of the lifting column can slide and that no cable can be pulled off when operating the lifting column.

RUI mount - mechanical installation

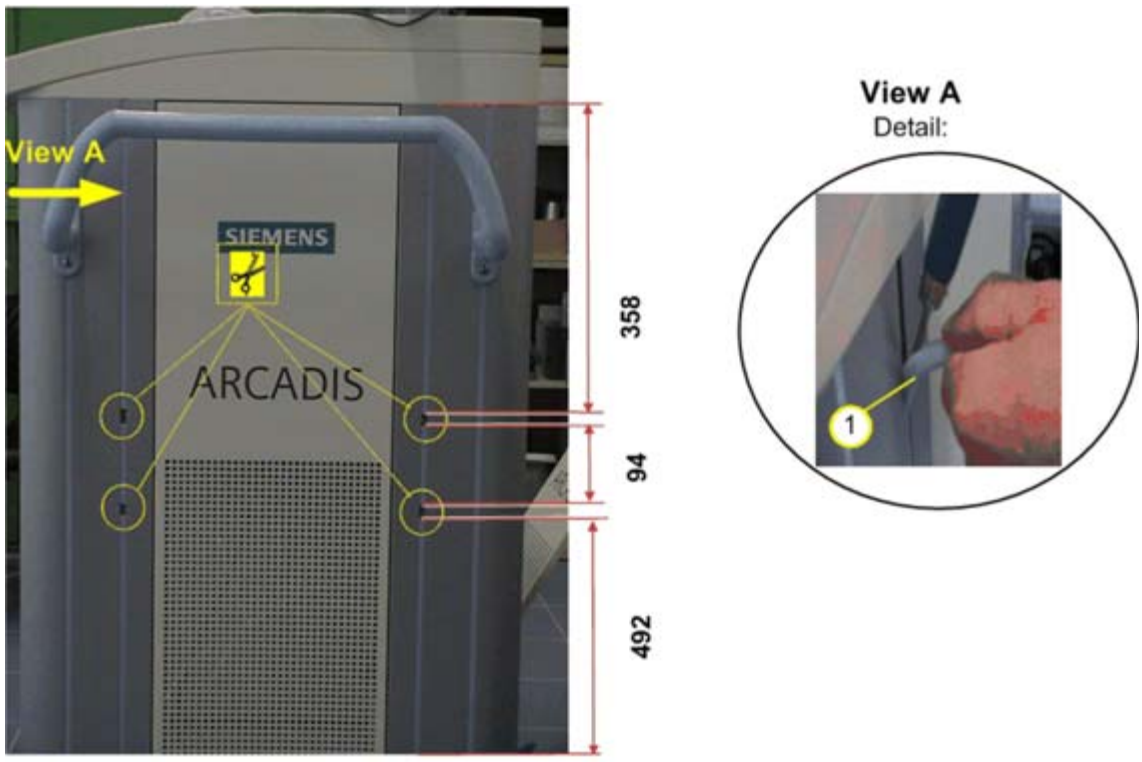

Fig. 24: Cutting section_1

- Using a screwdriver of proper size and shape, pry the two sections from the groove (1/Fig. 24 / p. 23).
- Cut each of the two profiles in 3 parts, according to the measurements given (358mm; 94mm; 492mm).
- Press the individual sections back in again as shown in the illustration (Fig. 24 / p. 23).
- Press a spring nut diagonally into the groove at each of the 4 resulting gaps (Fig. 24 / p. 23).

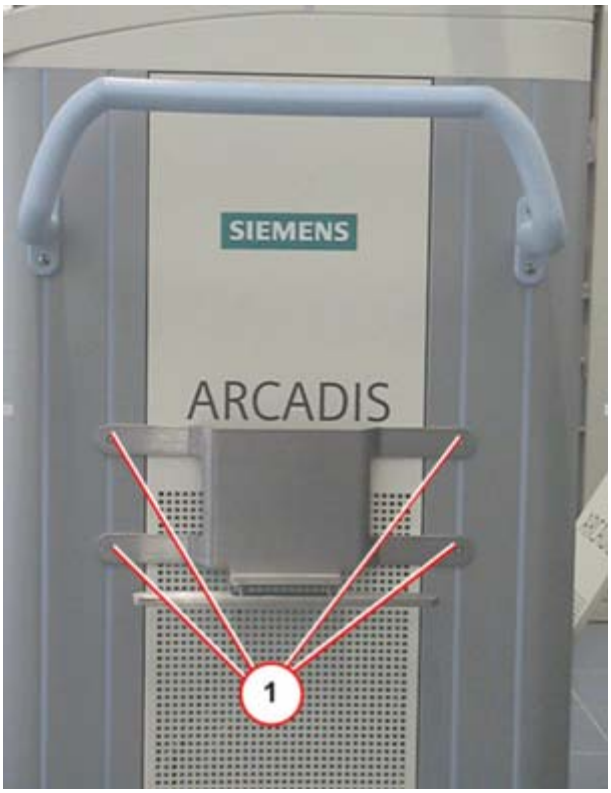

Fig. 25: Mount

Fig. 26: Console

- Attach the RUI mount with the Allen screws (included) (1/Fig. 25 / p. 24).
  - ➪ Before tightening the Allen screws, push up on the RUI mount.
- Hook the RUI (1/Fig. 26 / p. 24) into the RUI mount.
- Hook the RUI table support into the rail underneath the RUI (1/Fig. 26 / p. 24).

Requirements

NOTE

The EMC Kit has to be installed for ARCADIS Avantic systems with serial numbers 31091 to 31209.

With ARCADIS Avantic systems starting with serial number 31210, the EMC Kit has already been installed at the factory. So for these systems, please skip this chapter.

Items included in the EMC Kit

NOTE

The EMV Kit is divided into three sub-items:

1. “RUI”: This kit contains the ferrite cores for assembly on the additional cables provided in the scope of supply for the RUI retrofit kit. In addition, a fuse holder is included for ensuring the RUI +5V voltage supply.

The "RUI” Kit will soon no longer be necessary. The ferrite cores and the fuse holders are already being assembled onto the cable set and no longer delivered separately.

2. "Chassis": This kit contains the ferrite cores for assembly on the cables of the basic unit.

Starting with serial number 31210, the “Chassis” Kit will be assembled at the factory.

The “Chassis” Kit has to be assembled on systems with serial numbers from 31091 to 31209.

3. "C-arm cable": This kit contains the ferrites core for assembly on additional internal cables.

Starting with serial number 31210, the “C-arm cable” Kit will be installed at the factory.

The “C-arm cable” kit has to be installed in systems with serial numbers from 31091 to 31209.

Ground Cables and Contact Springs

Ground cables

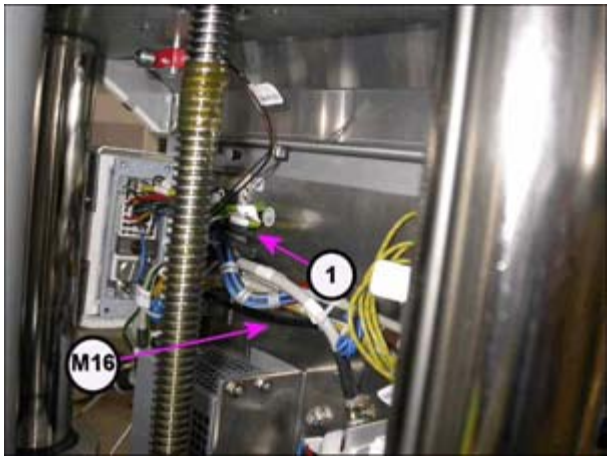

Fig. 27: Assembly of ground strap, position of M4 threaded hole

Pos. 1 Position of M4 threaded hole underneath the existing protective conductor

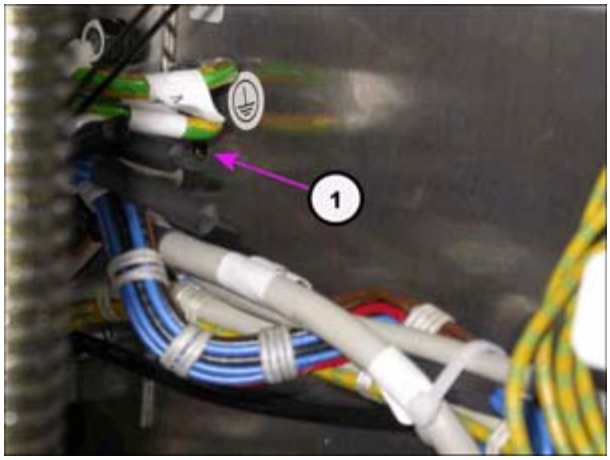

Fig. 28: Assembly of ground strap, location of M4 threaded hole enlarged

Pos. 1 Position of M4 threaded hole underneath the existing protective conductor

NOTE

The ground cable has mounting holes varying in size.

Attach the end of the ground cable with a mounting hole for an M4 screw to the M16 assembly, attach the other end of the ground cable with the existing M5 screw to the chassis below the right handle.

- Attach the end of the ground cable with a drill hole for an M4 screw to the M16 assembly, above the frequency converter using the M4 screw, washer and contact disk.

NOTE

The threaded hole for attaching the ground strap is not very accessible.

The vertical lifting column has to be brought down.

Just above the threaded hole for attaching the ground strap, the protective conductors are attached to another threaded hole using an M4 screw. For better access, the protective conductors should be arranged to the side or upwards. If necessary, slightly loosen the screw connecting the protective conductor and push the protective conductor to the side or upwards and then tighten the screw again. This makes the threaded hole for attaching the ground strap more accessible.

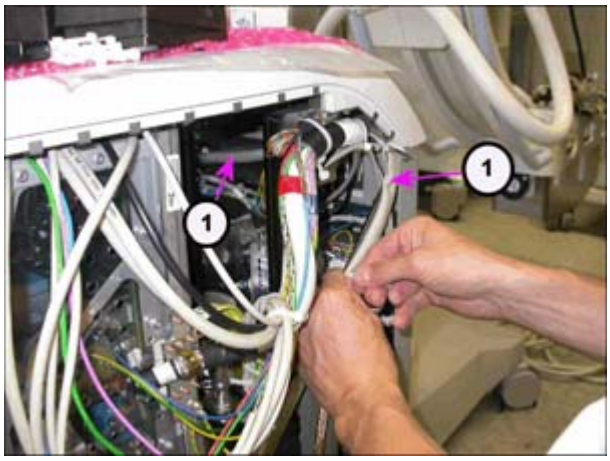

Fig. 29: Assembly of ground strap, installing the insulating tube
Pos. 1 Insulating tube around the ground strap

- If there is not yet an insulating tube pulled over the ground strap, then move the insulating tube provided (about 600 mm long) over the ground strap.
- Pull the insulating tube up to the mounting screw on the ground strap.

- Place the ground strap onto the support plate along the right side of the basic unit and secure using the cable ties. See illustration

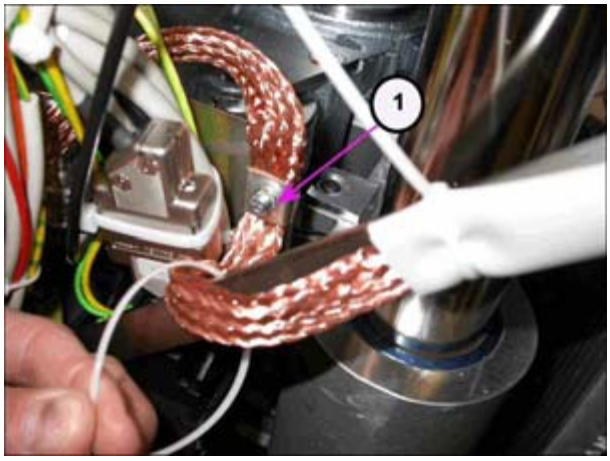

Fig. 30: Assembly of ground strap, connecting to the fitting panel
Pos. 1 M4 screw fitting

- Screw the second contact point with drill hole onto the support plate using the M4 screw, the washer and contact disk. See illustration

Fig. 31: Assembly of ground strap, connecting to N11
Pos. 1 M4 screw fitting

- Loosen the screw nut from the threaded bolt. See illustration
- Screw the third contact point of the ground strap together with the existing protective conductors onto the threaded bolt.

- Place the ground strap further to the rear.

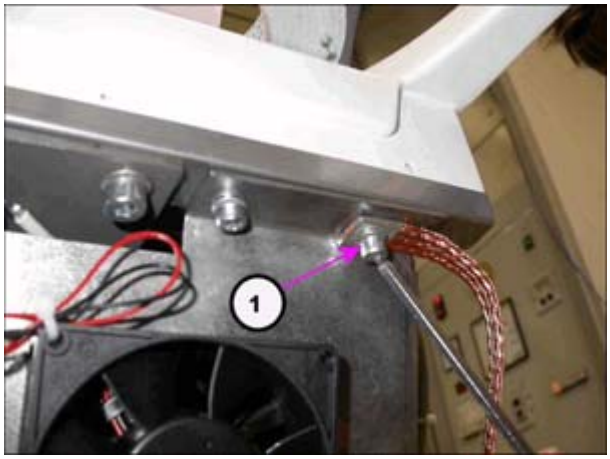

Fig. 32: Assembly of ground strap, back of basic unit
Pos. 1 M5 mounting screw

- Loosen the right screw. See illustration
- Tighten the last contact point of the ground strap using the loosened screw.

Contact springs

- An angled plate is visible above the generator housing.

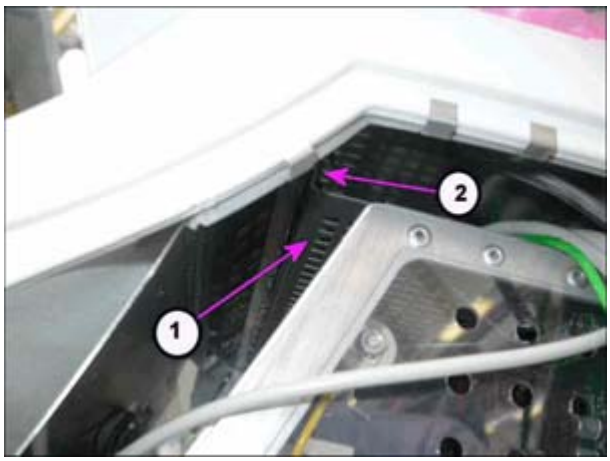

Fig. 33: Installing the contact springs

Pos. 1 Angle bracket

Pos. 2 Contact springs

Fig. 34: Installing the contact springs

- Hold the contact springs as shown in the illustration; the opening points downwards, the contacts point to the front (to the C-arm)
- Place the contact springs to the side on the upper edge of the angled plate and slide the contact springs completely on.

NOTE

When sliding on, press the contact springs from behind onto the plate. The contact springs then slide somewhat easier onto the upper edge of the angled plate.

EMV Kit "RUI"

Fig. 35: Scope of supply for EMC Kit

NOTE

Starting with the second version of the EMV Kit, ferrite cores and the fuse holders for the F1 fuse (RUI +5V fuse) are already mounted onto the cables provided in the RUI add-on kit.

Check to make sure that the fuse holder for the F1 fuse (RUI +5V fuse) is provided.

In case of a missing fuse holder, wire it to the designated spot. See the following description.

Check that all ferrite cores on the cables are provided.

In case of missing ferrite cores, mount these to the designated spot. See the following descriptions.

Fuse holder for F1 fuse (RUI +5V fuse)

NOTE

A fuse is included in the +5V voltage supply of the Remote User Interface. This is mounted on the D32.X1 connector in the new D32.X1 - X30 cable (round ODU connector). The initial designs of the D32.X1 - X30 cable were manufactured without the fuse included.

Starting with revision 01 of the D32 circuit board, the fuse has been placed on the D32 circuit board.

Check the revision status of the D32 circuit board. In revision status 01, the fuse is already included on the D32 circuit board. The fuse holder therefore no longer needs to be assembled.

With revision status 00, check to see if the fuse holder is already attached to the D32.X1 - X30 cable.

If not, the fuse holder has to be attached.

- Check the revision status of the D32 circuit board (inscription on the board)
  - ➪ For revision status 01: Skip the following sections on describing how to wire the fuse holder.
  - ➪ For revision status 00: Near the D32.X1 connector, check to see whether there is a fuse holder wired to X1.7, X1.9 and X1.11 pins. If there is a fuse holder: Skip the following sections on describing how to wire the fuse holder.
    If there is no fuse holder, then attach one as described below.

Wiring the fuse holder for F1 fuse (RUI +5V fuse)

- Remove the D32.X1 connector from the D32 circuit board.

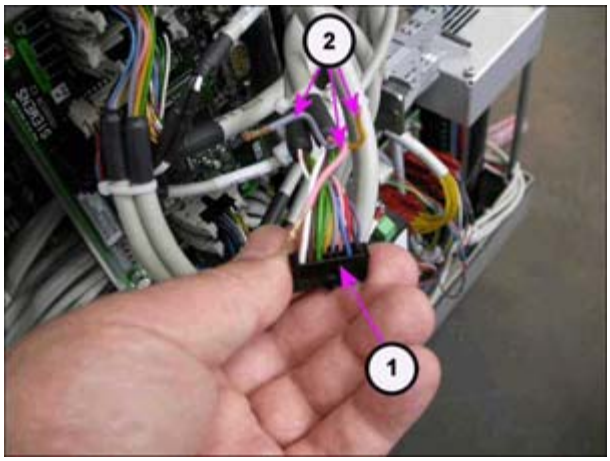

Fig. 36: Installing the fuse holder

Pos. 1 Position of the X1.7, X1.9 and X1.11 pins in the connector housing

Pos. 2 Thrown-out cables X1.7, X1.9, X1.11

- Throw out the X1.7, X1.9 and X1.11 contacts.
- Cut off the attached contacts from the cables and isolate the cable ends.
- Open the fuse holder.

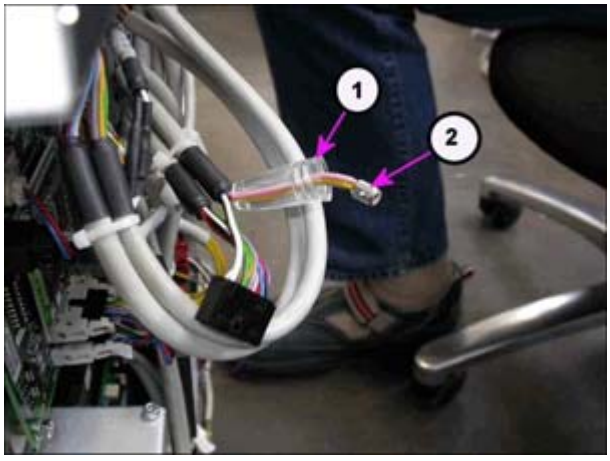

Fig. 37: Installing the fuse holder

Pos. 1 Fuse holder bushing

Pos. 2 Fuse holder clamp

- Thread the three cables through the housing part and attach the fuse contact.

- Close the fuse holder with fuse back up.
- Plug the three cable ends attached to the fuse holder into the X1.7, X1.9 and X1.11 contacts. The sequence is irrelevant because the cables are attached in parallel.

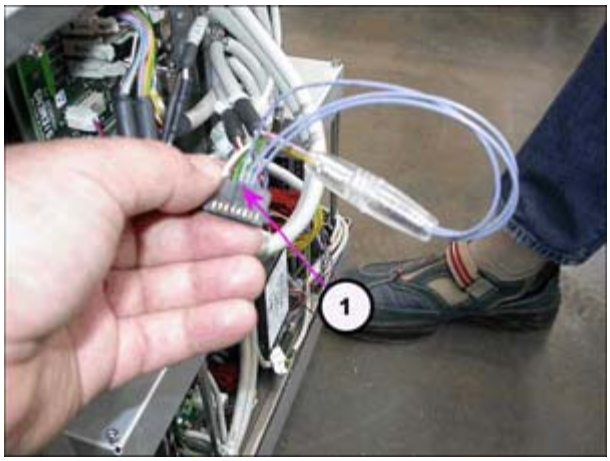

Fig. 38: Fuse holder installed
Pos. 1 Connecting cables from fuse holder ingoing

- Plug the D32.X1 connector back in.

Attaching the ferrite cores of the “RUI” Kit

Long ferrite core for D32.X8

- Remove the long ferrite core from the “RUI”Kit.
- Arrange the long ferrite core next to the D32.X8 connector surrounding the cable and press together until the housing parts engage. Position of the ferrite core: See illustration

Fig. 39: Ferrite core D32.X8

- Attach a cable tie both left and right next to the ferrite core in order to prevent the ferrite core from slipping on the cable.

Round ferrite core for D32.X1

- Remove the round ferrite core from the “RUI”Kit.
- Place the round ferrite core next to the D32.X1 connector surrounding the cable and press together until the housing parts engage. Position of the ferrite core: See illustration

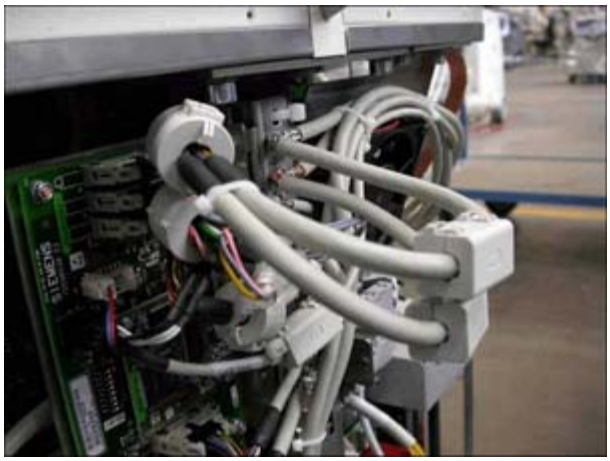

Fig. 40: Ferrite core D32.X5

- Attach a cable tie both left and right next to the ferrite core in order to prevent the ferrite core from slipping on the cable.

Round ferrite core for D32.X4

- Remove the round ferrite core from the “RUI”Kit.
- Place the round ferrite core next to the D32.X4 connector surrounding the cable and press together until the housing parts engage. Position of the ferrite core: See illustration

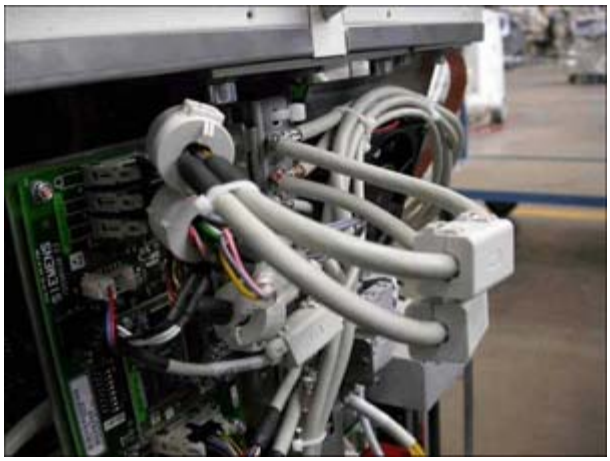

Fig. 41: Ferrite core D32.X5

- Attach a cable tie both left and right next to the ferrite core in order to prevent the ferrite core from slipping on the cable.

Round ferrite core for D1.X3

- Remove the round ferrite core from the “RUI”Kit.

- Place the round ferrite core next to the D1.X3 connector surrounding the cables and press together until the housing parts engage. Position of the ferrite core: See illustration

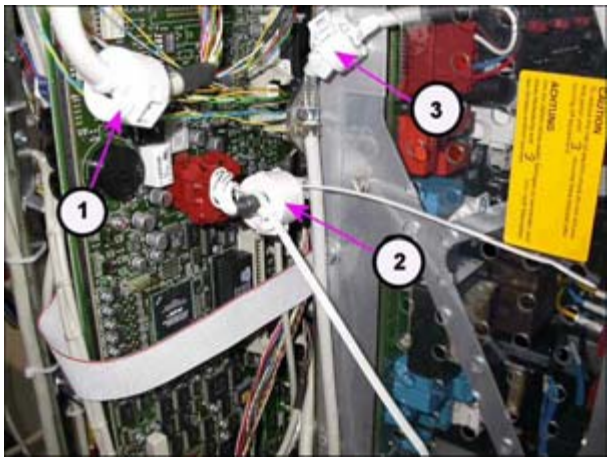

Fig. 42: Ferrite cores D1 / D20

Pos. 1 Position of ferrite core D1.X3

Pos. 2 Position of ferrite core D1.X8

Pos. 3 Position of ferrite core D20.X2

- Attach a cable tie both left and right next to the ferrite core in order to prevent the ferrite core from slipping on the cable.

Round ferrite core for the X30 cable (round ODU connector)

- Remove the round ferrite core from the “RUI”Kit.
- Place the round ferrite core next to the X30 (round ODU connector) surrounding the cable and press together until the housing parts engage. Position of the ferrite core: See illustration

Fig. 43: Ferrite core X30

- Attach a cable tie both left and right next to the ferrite core in order to prevent the ferrite core from slipping on the cable.

Attaching the ferrite cores from the “Chassis” Kit

Large round ferrite core for D1.X8

- Remove the large round ferrite core from the “Chassis” Kit.
- Place the large round ferrite core next to the D1.X8 connector surrounding the cable and press together until the housing parts engage. Position of the ferrite core: See illustration

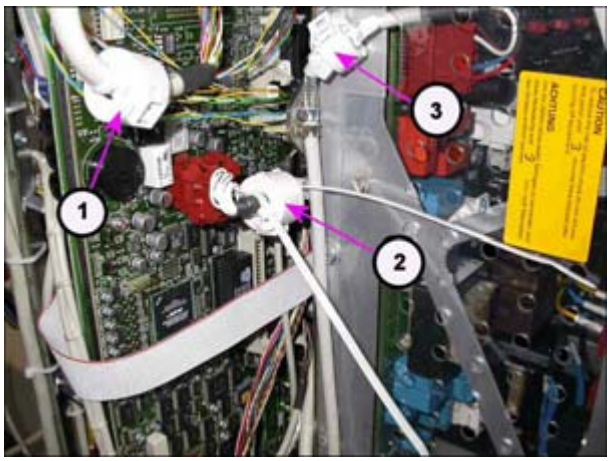

Fig. 44: Ferrite cores D1 / D20

Pos. 1 Position of ferrite core D1.X3

Pos. 2 Position of ferrite core D1.X8

Pos. 3 Position of ferrite core D20.X2

- Attach a cable tie both left and right next to the ferrite core in order to prevent the ferrite core from slipping on the cable.

Small round ferrite core for D20.X2 (Generator)

- Remove the small round ferrite core from the “Chassis” Kit.

- Place the small round ferrite core next to the D20.X2 connector surrounding the cable and press together until the housing parts engage. Position of the ferrite core: See illustration

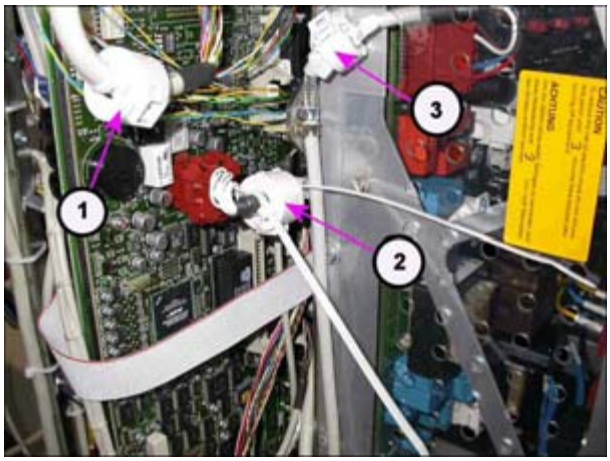

Fig. 45: Ferrite cores D1 / D20

Pos. 1 Position of ferrite core D1.X3
Pos. 2 Position of ferrite core D1.X8
Pos. 3 Position of ferrite core D20.X2

- Attach a cable tie both left and right next to the ferrite core in order to prevent the ferrite core from slipping on the cable.

Attaching the ferrite cores from the “C-arm Cable”Kit

Smaller, round ferrite core for D1.X2

- Remove the smaller, round ferrite core from the “C-arm Cable” Kit.
- Place the smaller, round ferrite core next to the D20.X2 connector surrounding the cable and press together until the housing parts engage. Position of the ferrite core: See illustration

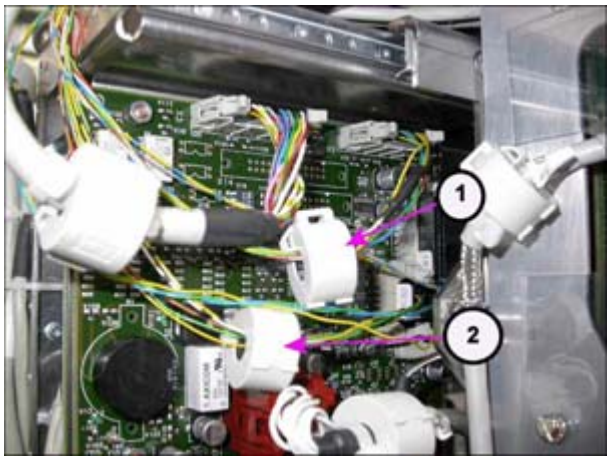

Fig. 46: Ferrite cores D1

Pos. 1 Position of ferrite core D1.X9
Pos. 2 Position of ferrite core D1.X2

- Attach a cable tie both left and right next to the ferrite core in order to prevent the ferrite core from slipping on the cable.

Smaller, round ferrite core for D1.X9

- Remove the smaller, round ferrite core from the “C-arm Cable” Kit.
- Place the smaller, round ferrite core next to the D1.X9 connector surrounding the cable and press together until the housing parts engage. Position of the ferrite core: See illustration

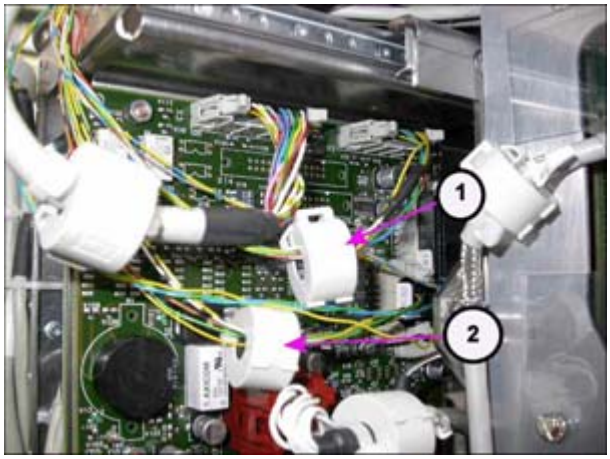

Fig. 47: Ferrite cores D1

Pos. 1 Position of ferrite core D1.X9

Pos. 2 Position of ferrite core D1.X2

- Attach a cable tie both left and right next to the ferrite core in order to prevent the ferrite core from slipping on the cable.

Long ferrite core for D31.X6

- Remove the long ferrite core from the “C-arm Cable” Kit.

- Arrange the long ferrite core next to the D31.X6 connector surrounding the cable and press together until the housing parts engage. Position of the ferrite core: See illustration

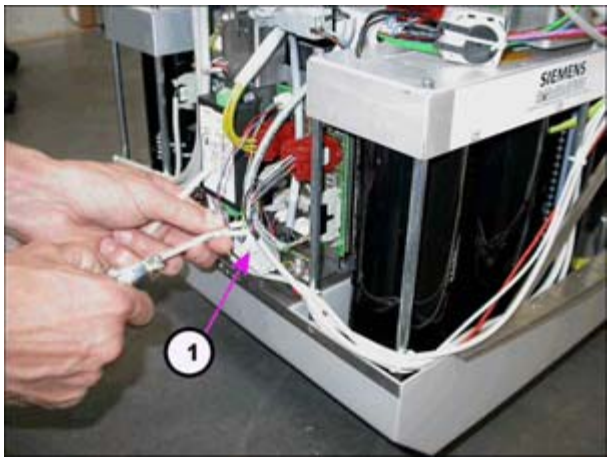

Fig. 48: Ferrite core D31.X6
Pos. 1 Position of ferrite core D31.X6

- Attach a cable tie both left and right next to the ferrite core in order to prevent the ferrite core from slipping on the cable.

One round and two long ferrite cores for D32.X5

- Remove one round and two long ferrite cores from the “C-arm Cable” Kit.
- Place the round ferrite core next to the D32.X5 connector surrounding the cable and press together until the housing parts engage. Position of the ferrite core: See illustration

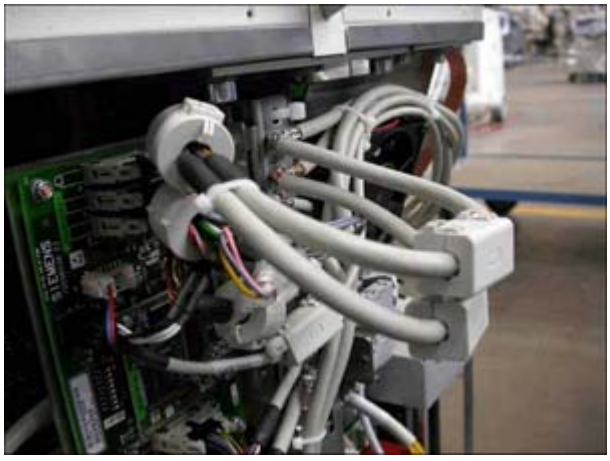

Fig. 49: Ferrite core D32.X5

- Attach a cable tie both left and right next to the ferrite core in order to prevent the ferrite core from slipping on the cable.
- Place both long ferrite cores next to the D32.X5 connector each surrounding both cables and press together until the housing parts engage. Position of the ferrite cores: See illustration

- Attach one cable tie both left and right next to each ferrite core in order to prevent the ferrite core from slipping on the cable.

Round ferrite core for operating unit

- Loosen the 2 ISK screws on the bottom side of the swivel mechanism.

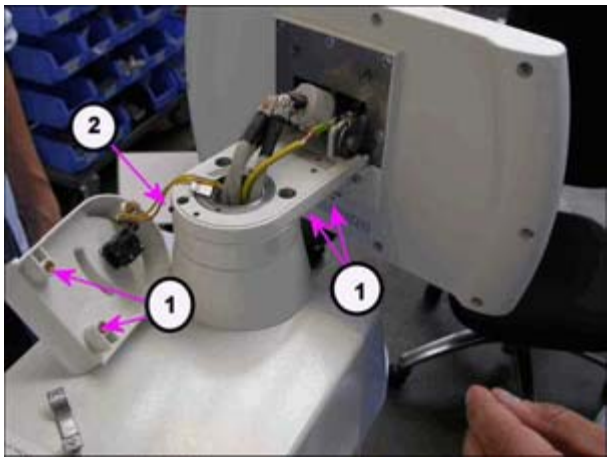

Fig. 50: Remove control unit's cover
Pos. 1 Location of the mounting screws
Pos. 2 Location of the side ISK screw

- Loosen the ISK screw located on the side of the unit.
  ➪ The cover above the operating unit's swivel mechanism can now be removed.
- Loosen both ISK screws of the cable routing.

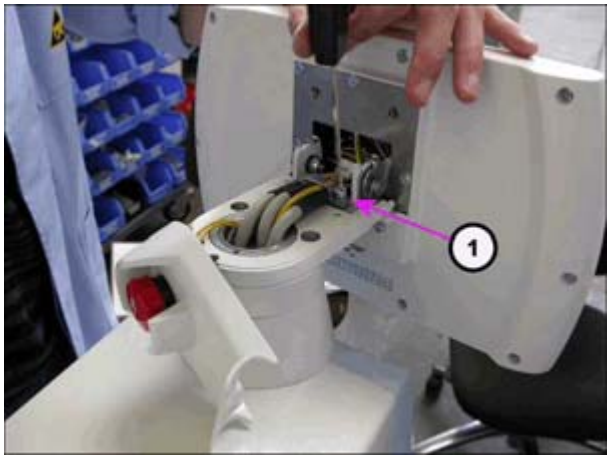

Fig. 51: Cable routing in the control unit
Pos. 1 Cable routing

- Remove the round ferrite cores from the “C-arm Cable” Kit.
- Place the round ferrite core around the cable ends and press together until the housing parts engage.

- Push the ferrite core in until it reaches the inside of the operating unit. See illustration

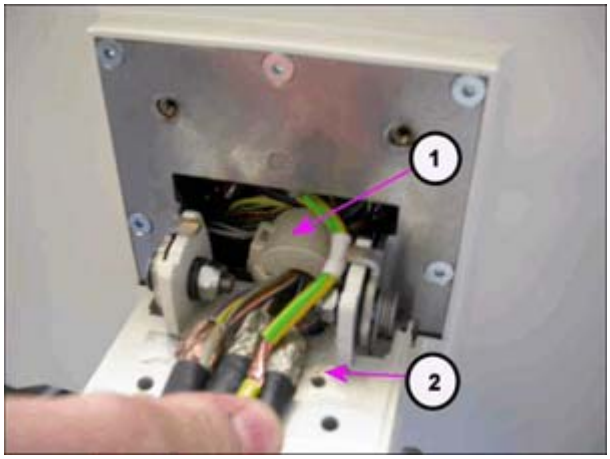

Fig. 52: Position of the ferrite core in the control unit

Pos. 1 Position of the ferrite core inside the control unit

Pos. 2 Position of the shielding:

- Screw down the cable routing over the three cables again. When doing so, make sure that the cables are not on top of one another Also, make sure that the shielding makes good ground contact.
- Re-assemble the cover over the swivel mechanism (2 ISK screws below, one ISK screw on the side).

Attaching the ferrite cores from the "Right Accessories Kit"

NOTE

The ferrite cores from the “Right Accessories Kit” are included in a separate bag in the “C-arm Cable” Kit.

Large, round ferrite core for the C-arm cable

- Remove the large, round ferrite core from the “Right Accessories Kit".

- Place the large, round ferrite core next to the cable outlet of the C-arm cable to surround the cable and press together until the housing parts engage. Position of the ferrite core: See illustration

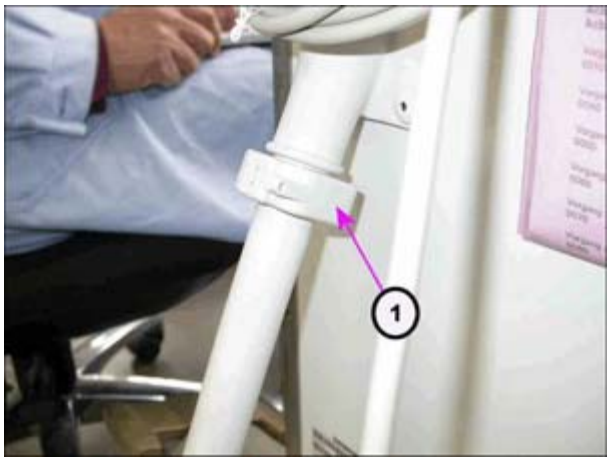

Fig. 53: Ferrite core in C-arm cable
Pos. 1 Position of ferrite core

- Attach a cable tie below the ferrite core in order to prevent the ferrite core from sliding on the cable.

Small, round ferrite core for the protective conductor

- Remove the small, round ferrite core from the “Right Accessories Kit.”
- Place the small, round ferrite core around both protective conductors and press together until the housing parts engage. Position of the ferrite core: See illustration

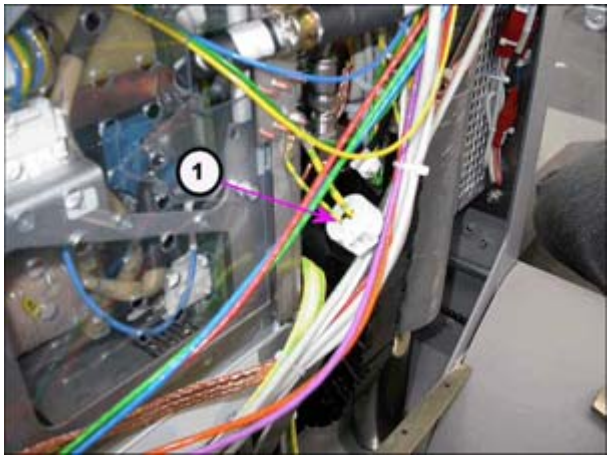

Fig. 54: Ferrite core protective conductor on right side of basic unit
Pos. 1 Location of ferrite core above protective conductor

- Attach a cable tie both left and right next to the ferrite core in order to prevent the ferrite core from slipping on the cable.

Large, round ferrite core for ground strap

- Remove the large, round ferrite core from the “Right Accessories Kit".

- Form a loop with the ground strap and place the large, round ferrite core around the ground strap and press together until the housing parts engage. Position of the ferrite core: See illustration

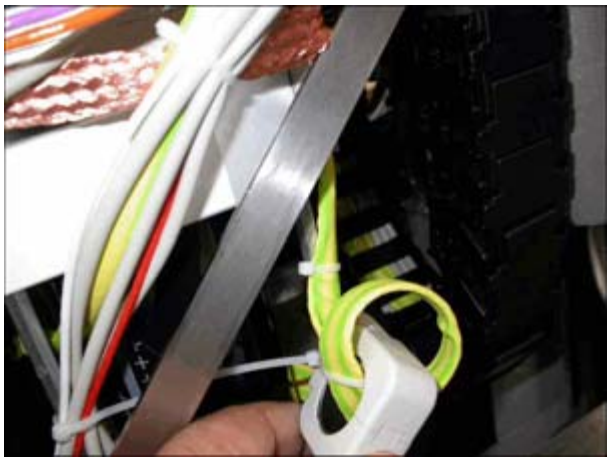

Fig. 55: Ferrite core enclosing the ground strap on right side of basic unit

- Attach the ferrite core to the ground strap loop using a cable tie.

Large, round ferrite core for cables routed above the generator housing

- Remove the large, round ferrite core from the “Right Accessories Kit".
- Include all cables that are routed above the generator leading to the right side of the basic unit and combine into one cable bundle.
- Place the large, round ferrite core around the cable bundle and press together until the housing parts engage. Position of the ferrite core: See illustration

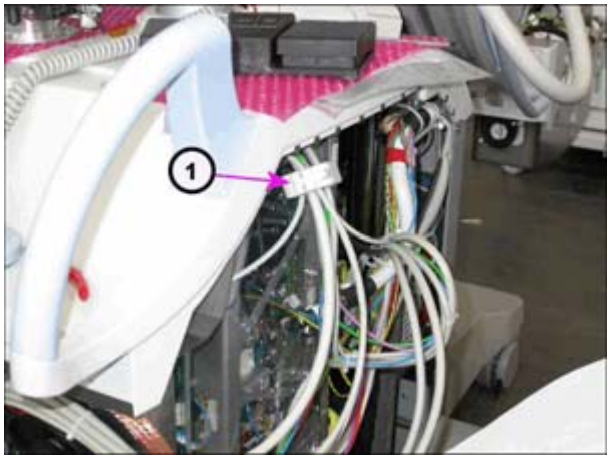

Fig. 56: Ferrite core for the cables installed above the generator housing

Pos. 1 Location of ferrite core cables above generator housing

- Attach a cable tie both left and right next to the ferrite core in order to prevent the ferrite core from slipping on the cable.

Large, round ferrite core for cables next to the M16 assembly

- Remove the large, round ferrite core from the “Right Accessories Kit".

- Include the available cables, without the C-arm cable, joined to the cross piece of the transport skid and bundle.
- Place the large, round ferrite core around the cables and press together until the housing parts engage. Position of the ferrite core: See illustration

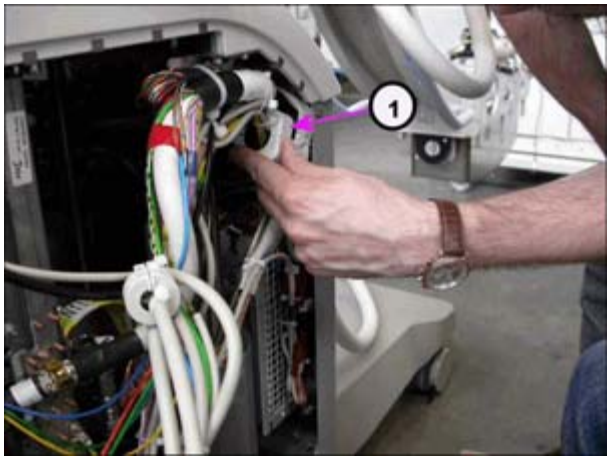

Fig. 57: Ferrite core near the M16 assembly
Pos. 1 Location of ferrite core

- Attach a cable tie both left and right next to the ferrite core in order to prevent the ferrite core from slipping on the cable.

Small, round ferrite core for cabling the operating unit coming

- Remove a small, round ferrite core from the “Right Accessories Kit.”
- Two cables are routed from the D32.X5 connector to the operating unit. One of the cables is has the inscription “LEONI.....” on the casing. See illustration

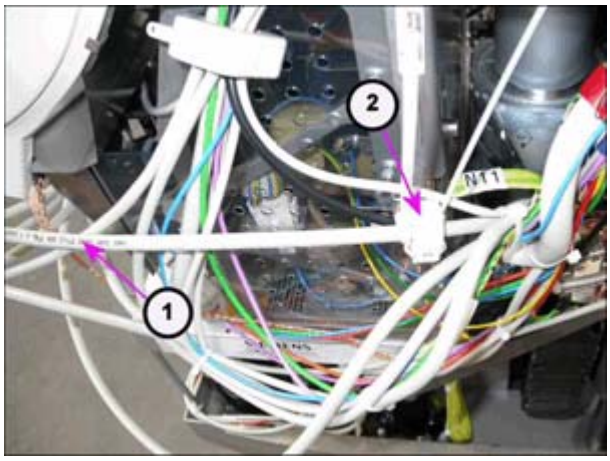

Fig. 58: Ferrite core D32.X5
Pos. 1 Cable from D32.X5 ingoing with text “LEONI.....”
Pos. 2 Location of ferrite core cable D32.X5

- Look for this cable.
- Place the small, round ferrite core around the inscribed cable and press together until the housing parts engage. Position of the ferrite core: See illustration

- Attach a cable tie both left and right next to the ferrite core in order to prevent the ferrite core from slipping on the cable.

Functional Test

- Connect the basic unit to the monitor cart (plug X10).
- Switch on the system and wait for it to boot up.
- No "inconsistencies" may be displayed.
- Check the function of the keys on the control panel of the basic unit.
  - ➪ Operate the lifting column (upwards and downwards).
  - ➪ Check the function of the emergency hold button (blocking of the motorized unit's movements)
  - ➪ Check the function of the brake buttons.
  - ➪ Check the operating mode selector. In doing so, trigger radiation briefly.
  - ➪ Open and close bulb shield (Iris collimation).
  - ➪ Check the zoom format selector.
  - ➪ Check the reverse image display function.
  - ➪ Check laser light localizer activation/deactivation.
  - ➪ Check 7-segment display
  - ➪ Check the image flip feature.
- Also, attach the Remote User Interface (RUI) to the X30 connector..
- Check the function of the keys on the RUI:
  - ➪ Operate the lifting column (upwards and downwards).
  - ➪ Check the function of the emergency hold button (blocking of the motorized unit's movements)
  - ➪ Check the function of the brake buttons.
  - ➪ Check the operating mode selector. In doing so, trigger radiation briefly.
  - ➪ Open and close bulb shield (Iris collimation).
  - ➪ Check the zoom format selector.
  - ➪ Check the reverse image display function.
  - ➪ Check laser light localizer activation/deactivation.
  - ➪ Check 7-segment display
  - ➪ Check the image flip feature.
- Switch the system off and wait until it turns off automatically.

Final work steps

Attach the protective conductor onto the rear cover panel

- Screw the protective conductor back onto the cover panel. Make sure the protective conductor makes good contact.

Assembling the X30 connector in the rear cover panel

- Remove the cover from the rear cover panel.
- Loosen the mounting nut from the X30 connector (24mm spanner wrench)
- Push the connector from the inside through the drill hole of the cover panel and tighten with the mounting nut (24mm spanner wrench).
- Put the cover panel back on the basic unit. Take care that the cables are not squeezed.

Protective conductor resistance test

⚠WARNING **Electrical voltage**

➪ **Observe the instructions for the protective conductor resistance test in the "General Information" chapter of these instructions.**

- Perform the protective conductor resistance test according to ARTD-002.731.17...
  - ➪ The protective conductor resistance must not exceed 0.2 ohms.

Chapter 2, section added: "RUI mount - mechanical installation"